

REMARKS

Claims 23-31, as amended, and new claims 32-44 appear in this application for the Examiner's review and consideration. Apparatus claims 1-22 have been cancelled without prejudice to applicants' rights to file one or more divisional applications for the subject matter of the cancelled.

Claim 23 was amended to more particularly define the invention, and specifically to recite that the semiconductor substrate is positioned against a fixed positioning member which maintains the substrate in a predetermined position on a support. This change is fully supported by the specification and in particular, paragraph 34 of the published application. In particular, the positioning member is preferably a vertically extending shim that prevents the wafer from lateral movement as the wafer is contacted by the blade. Claim 31 has been rewritten in independent form with appropriate grammatical changes. New claims 32 and 43 recite that the positioning member is at least one shim oriented vertically with respect to the support and the support is a support substrate that is operatively associated with the positioning member so that the positioning member maintains the position of the semiconductor substrate in a cutting plane that is parallel to the at least one blade and the support member. Support for this language appears in paragraph 35 of the published specification and original claims 2 and 8. New claims 33 and 44 recite that the shim has a contour that corresponds to the contour of the semiconductor substrate and covers at least one quarter of the periphery of the substrate to hold the wafer when contacted by the blade and the at least one blade has a leading edge that has a contour that corresponds to the contour of the semiconductor substrate and covers at least one quarter of the periphery of the substrate, as supported by claim 15 and paragraphs 11 and 34 of the published specification. As none of these changes or additions introduce new matter, all of them should be entered at this time.

It is understood that claims 23, 24 and 30 were previously examined due to the restriction requirement. It is respectfully submitted that at least new claims 32-34, 35, 41 and 43-44 should also be examined at this time. Applicants understand that upon the allowance of independent claims, all claims dependent from allowed independent claims will also be allowed.

Claims 23-24 were rejected as being anticipated by US patent 6,653,205 to Yanagita et al. ("Yanagita") for the reasons set forth on pages 2-3 of the action. Applicants traverse the rejection.

Yanagita describes a method to separate a surface layer of a bonded substrate, using a wedge to apply an asymmetric force to the bonding interface to form a crack in the separation layer. In particular, Yanagita discloses a process having two different steps – one that is a pre-separation step (see col. 5, lines 1-13) that propagates the crack from the bonded interface to the separation layer; and an actual separation step conducted on the separation layer (col. 5, lines 14-23). To maintain the wafer on the support, Yanagita proposes to press the wafer between an elastic body and a portion of the support (Fig. 7, and col. 10, lines 56-67).

In contrast, as noted above, the claims are directed to a device that separates a surface layer by positioning a substrate against a fixed positioning member and then contacting the substrate with a blade. Thus, the wafer is never pressed and instead rests upon a support in contact with the positioning member which prevents lateral movement as the wafer is contacted by the blade but allows it to freely move in the vertical direction. This enables the wafer to be freely move upwards or downwards as the blade cuts the substrate as explained in paragraph 43 of the published specification. Even if the shim includes a slight notch, as mentioned in paragraph 34 of the published application, it still must be enable movement of the wafer in the vertical direction perpendicular to the cutting plane of the blade without restriction. This construction contributes to the self adjusting feature of the invention. If desired, the support can move away from beneath the substrate to provide free movement of the cleaved substrate parts in different vertical directions, i.e., upwards for one part and downwards for the other part. By pressing against the wafer, Yanagita does not enable the free vertical movement of the wafer. Accordingly, all rejections based on Yanagita have been overcome and should be withdrawn.

Claim 30 was rejected solely under the second paragraph of 35 U.S.C. 112, as allegedly being indefinite for the reasons set forth on page 3 of the action. Applicants also traverse this rejection as it is believed that it is based on an incorrect interpretation of the claims.

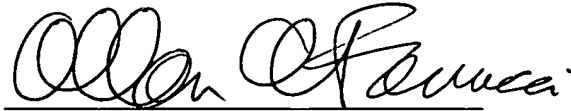
Claim 30 recites that at least a portion of a semiconductor substrate that has a weakened area and a peripheral annular notch that is located away from the weakened area is positioned against a fixed positioning member which maintains the substrate in a predetermined position while the substrate is supported on a support. This is clearly explained in the specification in that the positioning member is preferably a vertically extending shim, while the support is an entirely different component. In particular, the support member is not fixed in position and is capable of vertical movement, preferably away from the wafer so as to allow free

vertical movement of both parts of the wafer to facilitate free splitting of the substrate. Thus the support certainly is able to move away from the substrate as the blade contacts the annular notch, as claimed, and this disclosure is entirely consistent with the specification (see, e.g., paragraph 34, 36 and 43 of the published specification). Thus, this rejection has been overcome and should be withdrawn.

In view of the above, it is believed that claims 23-44 are in condition for allowance, early notice of which would be appreciated. Should the Examiner not agree, then a telephonic or personal interview is respectfully requested to discuss any remaining issues and expedite the eventual allowance of the claims.

Respectfully submitted,

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